



SCUOLA  
NORMALE  
SUPERIORE

## SEMINARIO DI MATEMATICA

Mercoledì 19 settembre 2018  
ore 15:00

Scuola Normale Superiore  
Pisa  
Aula Mancini

**Roberto Pirisi**

(University of British Columbia)

terrà un seminario dal titolo:

### “Birational geometry and Gabriel's theorem (Joint with J. Calabrese)”

**Abstract:**

*It is a well-known result by Gabriel that the category of coherent sheaves of a Noetherian scheme  $X \rightarrow S$  contains sufficient information to reconstruct it, or in another words that an isomorphism  $\text{Coh}(Y) \rightarrow \text{Coh}(X)$  (as  $S$ -linear categories) induces a corresponding isomorphism  $X \rightarrow Y$  and vice-versa. As a corollary, the group of automorphisms of  $\text{Coh}(X)$  is a semidirect product of  $\text{Aut}(X)$  and  $\text{Pic}(X)$  (note that tensoring by a line bundle induces an isomorphism on coherent sheaves). In a recent joint work with J. Calabrese, we prove a birational extension of this result, showing that when  $X$  is of finite type over a field the geometry of  $X$  "up to dimension  $d$  or lower" is controlled by the category  $\text{Coh}_{\geq d}(X)$  of coherent sheaves modulo those supported in dimension  $d$  or lower, and identify the automorphisms of this category as a semidirect product of the automorphisms of  $X$  "up to dimension  $d$  or lower" with the group of line bundles on  $X$  "up to dimension  $d$  or lower".*

Tutti gli interessati sono invitati a partecipare.

Classe di Scienze Matematiche e Naturali